

Hookah in The 'Ville:

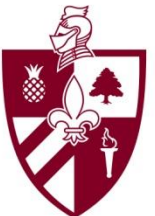
Is there cause for concern?

Paul J Kiser, PhD
Bellarmino University



“The Caterpillar and Alice looked at each other for some time in silence: at last the Caterpillar took the hookah out of its mouth, and addressed her in a languid, sleepy voice. ‘Who are you?’ said the Caterpillar.”

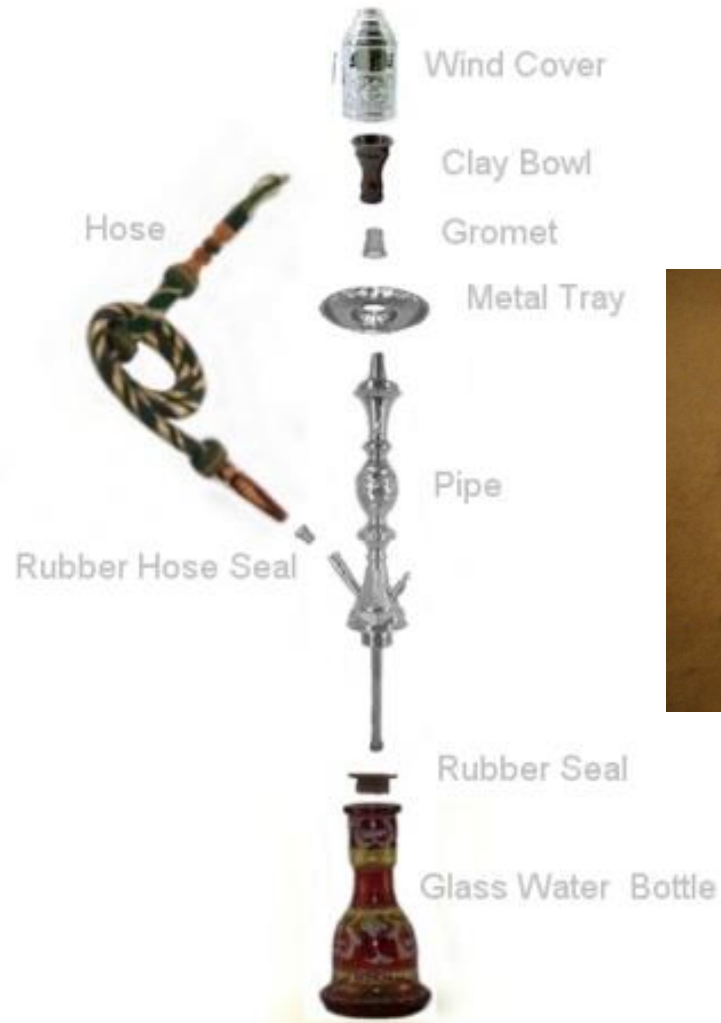
- Alice’s Adventures in Wonderland, by Lewis Carroll



BELLARMINE
UNIVERSITY
IN VERITATIS AMORE

What is a hookah?

(shisha, narghile, or argileh water pipes)





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Hookah Menu

Hookah Flavor Menu

Kufiya Cafe and Hookah Lounge in Louisville KY offers a large selection of hookah flavors. You have your choice of our traditional or premium Here is Our Simple Menu.* If you like to combine flavors, just ask, you can combine as many flavors as you like and there are no extra charge

* More Flavors are in cafe *

TRADITIONAL FLAVORS - \$10.00 Refill \$4.00

Mixed Fruit	Apricot	Peach
Double Apple	Mango	Vanilla
Green Apple	Orange	Jasmine
Cherry	Cocunut	Rose
Strawberry	Lemon	Mint
Watermelon	Pineapple	Lemon Mint
Blueberry	Banana	Orange Mint
Sweet Melon	White Grape	
Raspberry	Kiwi	
Blackberry	Guava	

PREMIUM FLAVORS - \$12.00 Refill \$5.00

White Peach
Sweet Melon
Orange
Pineapple
Sex on the Beach
Fuzzy Navel
Raspberry
Blueberry
Blue Mist
Code 69
HOUSE BLENDS

Midnight Mix
Sunshine
Bust A Nutt
Freak Creek
Arabian Night

FRESH FRUIT H

- Apple
- Lemon
- Banana
- Orange
- Pineapple



Photo contributed by Miguelito Bámaca

About Cafe' 360

3.9 ★★★★★ (810 ratings) Cafe · Coffee Shop · Hookah Lounge

Address 1582 Bardstown Rd
Louisville, Kentucky 40205

Phone (502) 473-8694

Status

Price

Menu



1043 Bardstown Rd
Louisville, KY 40204
Bardstown Road, Highlands- Cherokee Triangle
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Mazaj Cafe & Hookah

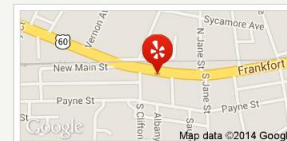
@MazajCafeHookah

Come relax and enjoy yourself at recently opened Mazaj Cafe & Hookah, A National Registered Historic Place in Louisville, Ky located at 1220 BARDSTOWN RD in the

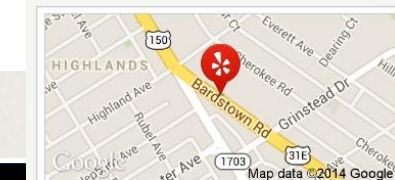
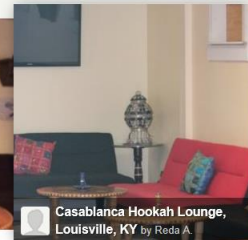
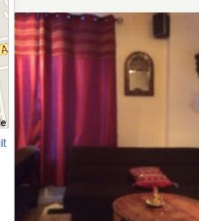
Casablanca Hookah Lounge

★★★★★ 1 review [Details](#)

\$\$ · Hookah Bars, Lounges, Mediterranean [Edit](#)



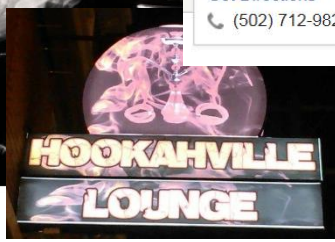
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Hookahville Lounge
Restaurant · Hookah Lounge · City





Commonly Heard Hookah Myths

“Hookah isn’t as addictive as ‘smoking.’”

“The water in the pipe filters the smoke.”

The Great Hookah Hoax

“Hookah is just a harmless social activity.”

“Hookah is natural”

Toxin Content of Smoke*			
A single hookah session compared to smoking a single cigarette			
CHEMICAL	HOOCAH	CIGARETTE	COMPARISON hookah to cigarette
“Tar”	802.0 mg	22.3 mg	36 times the tar
Nicotine	2.96 mg	1.74 mg	1.7 times the nicotine
Carbon Monoxide	145.0 mg	17.3 mg	8.4 times the carbon monoxide

Sources: Shihadeh & Saleh (2005) Food and Chemical Toxicology Vol 43(5): 655-661
Djordjevic et al (2000) Journal of National Cancer Institute Vol 92: 106-111

* We would like to thank Dr. Thomas Eissenberg of Virginia Commonwealth University, who assisted us with the accuracy of this poster and in understanding how to make a fair comparison.





OPEN ACCESS

Health effects associated with waterpipe smoking

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Received 17 September 2014
Revised 23 December 2014
Accepted 15 January 2015

ABSTRACT

Objective It is widely held that waterpipe smoking (WPS) is not associated with health hazards. However, several studies have documented the uptake of several toxicants and carcinogens during WPS that is strongly associated with harmful health effects. This paper reviews the literature on the health effects of WPS.

Data sources Three databases-PubMed, MEDLINE and EMBASE-were searched until August 2014 for the acute and long-term health effects of WPS using the terms 'waterpipe' and its synonyms (hookah, shisha, goza, narghileh, argileh and hubble-bubble) in various spellings.

Study selection We included original clinical studies, case reports and systematic reviews and focused on clinical human studies. ~10% of the identified studies met the selection criteria.

Data extraction Data were abstracted by all three authors and summarised into tables. Abstracted data included study type, results and methodological limitations and were analysed jointly by all three authors.

Data synthesis WPS acutely leads to increased heart rate, blood pressure, impaired pulmonary function and carbon monoxide intoxication. Chronic bronchitis, emphysema and coronary artery disease are serious complications of long-term use. Lung, gastric and oesophageal cancer are associated with WPS as well as periodontal disease, obstetrical complications, osteoporosis and mental health problems.

Conclusions Contrary to the widely held misconception, WPS is associated with a variety of adverse short-term and long-term health effects that should reinforce the need for stronger regulation. In addition, this review highlights the limitations of the published work, which is mostly cross-sectional or retrospective. Prospective studies should be undertaken to assess the full spectrum of health effects of WPS, particularly in view of its growing popularity and attractiveness to youth.

BACKGROUND AND INTRODUCTION

The worldwide prevalence of daily waterpipe smoking (WPS) is estimated to be 100 million¹ with alarming increasing popularity among the youth.² This global trend is on the rise as per several epidemiological studies and surveys due to the following factors: (1) the introduction of flavoured waterpipe tobacco with its reduced harshness, pleasant flavour and aroma;^{3,4} (2) the misconception that it is 'healthier' than cigarette smoking;⁵ (3) social acceptance and being an essential part of gatherings, and café and restaurant culture;^{6,7} (4) internet, mass and social media;^{8,9} (5) low cost;¹⁰ (6) lack of waterpipe-specific policy and regulations towards its use;^{11,12} and (7) immigration of people from Middle Eastern countries to the European Region, the Region of the Americas

and the Western Pacific Region.⁴ The perception of safety and harm reduction has been refuted by studies which documented the presence in waterpipe smoke of harmful toxicants and carcinogens^{3,6} that are taken in by smokers and not filtered out by the passing through water.

Contrary to this misconception about the safety of WPS, several studies have demonstrated its adverse health effects on many organs but primarily the cardiovascular and respiratory systems where there is documentation of coronary artery disease (CAD) and obstructive pulmonary disease and increased risk to develop lung cancer. In addition, prenatal effects in smoking mothers, periodontal disease and other health effects have been described in this group of smokers. This paper is a narrative review of the current knowledge on the health effects of WPS and it draws recommendations for the work needed to determine the scope of disease in this group of smokers and highlights the importance of regulatory measures to curb this rapidly growing epidemic.

METHODS

Eligibility criteria

For a comprehensive evaluation of published data on the health effects of WPS, a minimally restrictive approach of study inclusion was adopted. All available original clinical studies (cohort, case-control and cross-sectional), systematic reviews, case reports and case series were included. Relevant abstracts and full text studies were also included. In vitro and animal studies were included but were not the main focus of this study. Publications that were not eligible were letters and editorials that did not represent original research, or publications that did not assess our main outcomes of interest, that is, effects or outcomes of WPS on human health.

Search strategy

PubMed, MEDLINE and EMBASE databases were searched from the earliest studies on those databases until 27 August 2014. A medical librarian was consulted and agreed with the search strategy used. The PubMed search was carried out using a strategy employing synonyms of 'waterpipe': waterpipe OR hookah OR shisha OR goza OR narghileh OR argileh OR hubble-bubble. MEDLINE was searched using previously reported strategies,⁷ which helped identify further studies not found using the former strategy. EMBASE was searched using a modified version of the MEDLINE search, namely searching for terms in titles and abstracts only, including only English language hits for the term 'goza', and combining the search terms 'water pipe' or 'argil' with the term 'tobacco'. This resulted in a more focused retrieval of studies from EMBASE, since applying the non-modified



OPEN ACCESS

A review of air quality, biological indicators and health effects of second-hand waterpipe smoke exposure

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Received 18 September 2014
Accepted 20 November 2014

ABSTRACT

Objective There has been a rapid increase in the use of waterpipe tobacco and non tobacco based shisha in many countries. Understanding the impact and effects of second hand smoke (SHS) from cigarette was a crucial factor in reducing cigarette use, leading to clean indoor air laws and smoking bans. This article reviews what is known about the effects of SHS exposure from waterpipes.

Data sources We used PubMed and EMBASE to review the literature. Articles were grouped into quantitative measures of air quality and biological markers, health effects, exposure across different settings, different types of shisha and use in different countries.

Study selection Criteria for study selection were based on the key words related to SHS: waterpipe, hookah, shisha and third hand smoke.

Data extraction Independent extraction with two

US Department of Health and Human Services, which estimated that 60% of US non-smokers are exposed to SHS.² Exposure occurs through several distinct routes: sidestream smoke, mainstream smoke, or smoke that has permeated the air of the surrounding environment. Sidestream smoke is the smoke discharged from the lit end of a burnt tobacco product; mainstream smoke is the smoke that is inhaled by a smoker and subsequently exhaled into the environment during a period of active smoking.³ Another route of exposure by non-smokers is third-hand smoke (THS), which is defined as the residual matter from tobacco smoke that collects on surfaces and in dust.⁴ While SHS and THS have historically been associated with cigarette smoke, there has recently been an alarming rise in alternative non-cigarette tobacco use, raising the important question of whether these products also generate harmful SHS and THS.

Data synthesis A primary literature search yielded 54 articles, of which only 11 were included based on relevance to SHS from a waterpipe/hookah/shisha.

Conclusions The negative health consequences of second-hand waterpipe exposure have major implications for clean indoor air laws and for occupational safety. There exists an urgent need for public health campaigns about the effects on children and household members from smoking waterpipe at home, and for further development and implementation of regulations to protect the health of the public from this rapidly emerging threat.

INTRODUCTION

While cigarette use has decreased dramatically in recent years, there has been a marked increase in adolescent and young adult use of alternative, non-cigarette tobacco products. The total consumption of cigarettes in the USA decreased by 33% between 2000 and 2011¹; however, estimations from this same time period show a 123% increase in the consumption of alternative tobacco products, including hookahs (waterpipes), cigarillos, cigars, bidis, kreteks and smokeless tobacco (snuff, dip, snus and chewing tobacco).¹

Inhalation of second-hand smoke (SHS) by non-smokers has been associated with multiple diseases in paediatric and adult populations. Such evidence is especially troubling given the 2006 report by the

exposure, which highlights the need for additional research on home exposure and populations that may be at particular risk of exposure within the home, such as children.¹¹

METHODS

We conducted a primary literature search in two separate databases; PubMed and EMBASE. We used the following search terms:

passive smoking, second hand smoke, second hand smoker, second hand smokers, second-hand smoke, third hand smoke, waterpipe, waterpipes, water-pipe, water-pipes, hubble-bubble, hookah narghile, shisha, qalyan.

We combined the list of articles found from the two databases. Two reviewers went through the title and abstract of each article for relevance. We



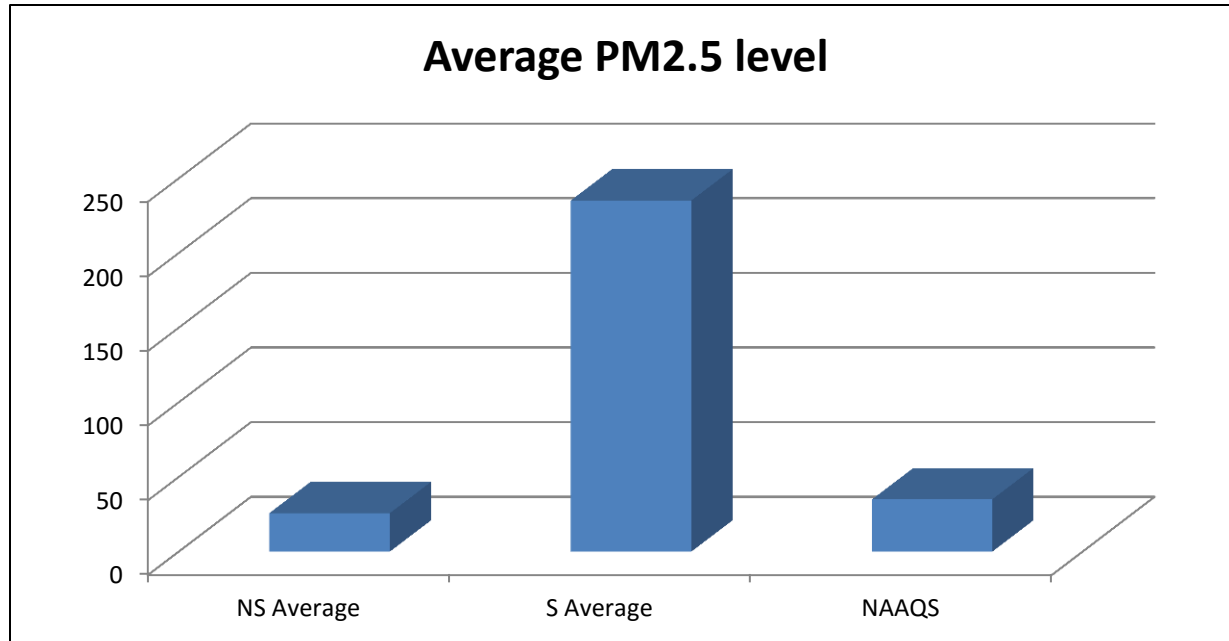
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Tobacco Control 2015;24:e143



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To cite: El-Zaatari ZM, Chami HA, Zaatari GS. Tob Control 2015;24:e143.

Louisville Hookah Lounge Air Quality



Air quality data showing average (in $\mu\text{g}/\text{m}^3$) concentration of respirable particulate matter (PM2.5 = air particulates smaller than $2.5\mu\text{m}$) in indoor air samples from non-smoking bars/ restaurants and those that allow hookah smoking in Louisville, KY. The third column shows the National Ambient Air Quality Standard for PM2.5 in outdoor air ($35\mu\text{g}/\text{m}^3$ - there is no federal indoor air quality standard).

But What About the Nicotine?



Contents lists available at ScienceDirect

Drug and Alcohol Dependence

journal homepage: www.elsevier.com/locate/drugalcdep



Acute effects of waterpipe tobacco smoking: A double-blind, placebo-control study[☆]

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Overall, results from this double-blind, placebo-control study demonstrate that waterpipe tobacco smoking produces some effects likely due to nicotine (e.g., cardiovascular response) and some effects likely due to other factors (e.g., subjective experience). Importantly, nicotine- and non-nicotine factors may be involved in the development of tobacco dependence in cigarette smokers (e.g., Eissenberg, 2004; Brandon et al., 2004), thus waterpipe tobacco smokers may also be at risk for dependence (Maziak et al., 2004). Future work is needed to delineate these factors in waterpipe smokers and understand better their role in waterpipe dependence. Also notable is the observation that using a waterpipe to smoke a non-tobacco product results in a substantial level of CO exposure that did not differ from that observed when smoking tobacco under identical conditions. Some waterpipe smokers may believe that non-tobacco products can be used to reduce exposure to smoke toxicants (Roskin and Aveyard, 2009). However, while nicotine exposure is clearly eliminated, CO exposure is not. Moreover, charcoal is the source of CO and carcinogenic PAHs (Monzer et al., 2008) in waterpipe smoke. Thus, aside from dependence, the health risks of using a waterpipe to smoke non-tobacco preparations may be similar to those of smoking tobacco whenever charcoal is the heat source.

ABSTRACT

Background: Waterpipe tobacco smoking usually involves heating flavored tobacco with charcoal and inhaling the resulting smoke after it has passed through water. Waterpipe tobacco smoking increases heart rate and produces subjective effects similar to those reported by cigarette smokers. These responses are thought to be nicotine-mediated, though no placebo-control studies exist. Accordingly, this double-blind, placebo-control study compared the acute physiological and subjective effects of waterpipe tobacco smoking to those produced when participants used a waterpipe to smoke a flavor-matched, tobacco-free preparation.

Method: Occasional waterpipe tobacco smokers ($n=37$; 2–5 monthly smoking episodes for ≥ 6 months) completed two double-blind, counterbalanced sessions that differed by product: preferred brand/flavor of waterpipe tobacco or flavor-matched, tobacco-free preparation. For each 45-min, ad lib smoking episode blood and expired air CO were sampled, cardiovascular and respiratory response were measured, and subjective response was assessed.

Results: Waterpipe tobacco smoking significantly increased mean (\pm SEM) plasma nicotine concentration (3.6 ± 0.7 ng/ml) and heart rate (8.6 ± 1.4 bpm) while placebo did not (0.1 ± 0.0 ng/ml; 1.3 ± 0.9 bpm). For carboxyhemoglobin (COHb) and expired air CO, significant increases were observed for tobacco ($3.8 \pm 0.4\%$; 27.9 ± 2.6 ppm) and for placebo ($3.9 \pm 0.4\%$; 27.7 ± 3.3 ppm) with no differences across condition. Independent of condition, symptoms of nicotine/tobacco abstinence (e.g., "urges to smoke", "anxious") were reduced and direct effects (e.g., "dizzy", "satisfy") increased.

Discussion: These results from the first placebo-control study of waterpipe tobacco smoking demonstrate that waterpipe-induced heart rate increases are almost certainly mediated by nicotine though the subjective effects observed in these occasional smokers were not.

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...le have smoked tobacco using a waterpipe (arika, narghile, murgile, shisha); inhalation of charcoal-heated air passes through tobacco, travels down the body, and bubbles through water in the bowl before reaching smokers' lungs (World Health Organization, 2005). While often associated with southwest Asia, waterpipe tobacco smoking is now seen worldwide

(e.g., Pâma et al., 2008; Jensen et al., 2010). In the U.S., for example, past 30-day waterpipe tobacco smoking has been reported by 9–20% of some college samples (Cobb et al., 2010). A survey of 8745 students from 8 universities revealed that 7.2% reported past 30-day use and 29.5% reported "ever use" (Primack et al., 2010). Past 30-day use among 14–18 year old Arab-Americans may be as high as 16% and non-Arab-Americans as high as 11% (Weglicki et al., 2007).

One reason for the global spread of waterpipe tobacco smoking may involve the oft-reported belief that waterpipes are less risky than cigarettes (Al-Jarrah et al., 2009; Smith-Simone et al., 2008). This belief seemingly is contradicted by demonstrations that various constituents of waterpipe smoke are known to cause cancer (e.g., polycyclic aromatic hydrocarbons [PAH]; Sepetdjian et al., 2008), lung disease (e.g., volatile aldehydes; Al Rashidi et al., 2008),

[☆] All work was performed at Virginia Commonwealth University.
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E-mail address: teissebn@vcu.edu (T. Eissenberg).

It doesn't really matter!

Health agencies are virtually
unanimous...

AMA, AAP, ALA, ACS, AHA, CDC, FDA,
WHO, NCTFK, and many more...

...All agree hookah is a growing public health
threat, especially to minors and young adults, and
must be regulated immediately.

The nicotine industry is adapting much faster than
the health advocates ever can.

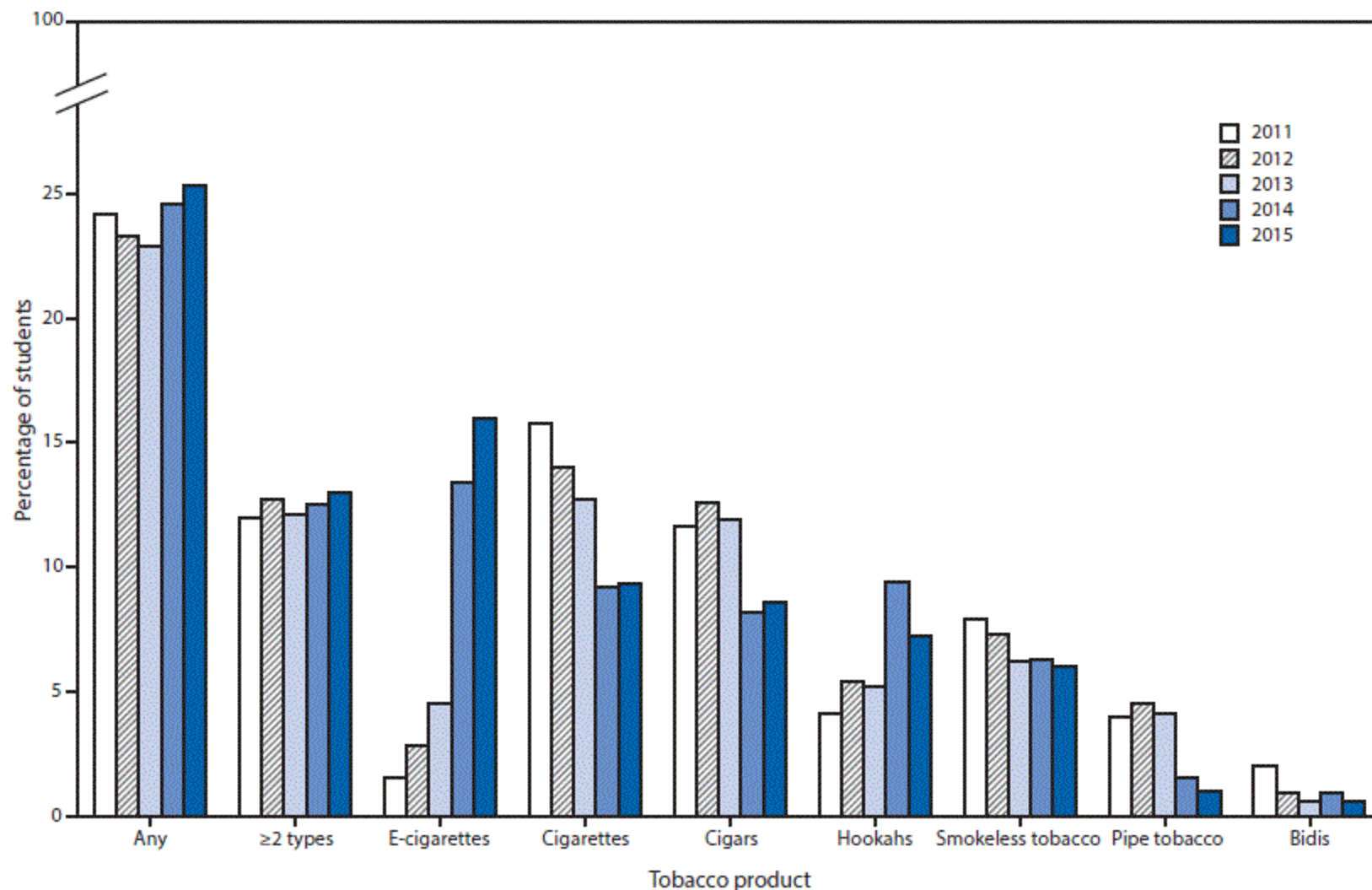
Tobacco Use Among Middle and High School Students — United States, 2011–2015

MMWR / April 15, 2016 / 65(14); 361-367

Tushar Singh, MD, PhD; René A. Arrazola, MPH; Catherine G. Corey, MSPH; Corinne G. Husten, MD;
Linda J. Neff, PhD; David M. Homa, PhD; Brian A. King, PhD

- During 2011–2015, significant increases in current use of e-cigarettes and hookahs occurred among middle and high school students, whereas current use of conventional tobacco products, such as cigarettes and cigars decreased, resulting in no change in overall tobacco product use.
- During 2011–2015, among all high school students, significant nonlinear increases were observed for current use of e-cigarettes (1.5% to 16.0%) and hookahs (4.1% to 7.2%)

FIGURE 1. Estimated percentage of high school students who currently use any tobacco products, ≥ 2 tobacco products, and select tobacco products — National Youth Tobacco Survey 2011–2015



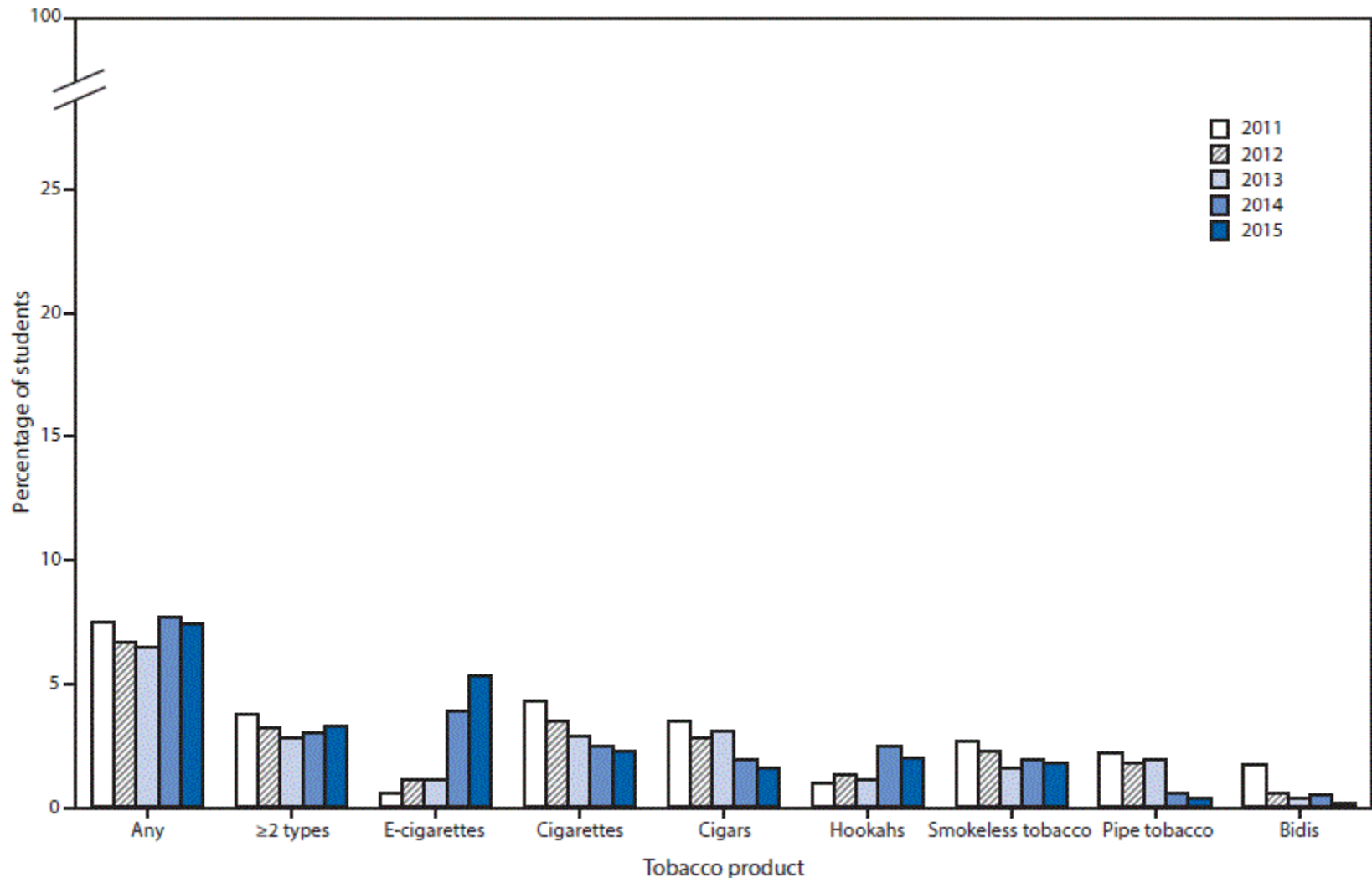
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- Among middle school students, significant linear increases were observed for current use of e-cigarettes (0.6% to 5.3%) and hookahs (1.0% to 2.0%)

FIGURE 2. Estimated percentage of middle school students who currently use any tobacco products, ≥ 2 tobacco products, and select tobacco products in the past 30 days — National Youth Tobacco Survey, 2011–2015



Hookah Users' Perceptions of Hookah Risk

E-cigarette Users' Perceptions of E-cigarette Risk

Perceptions of Hookah Risk Based on Lounge Visitation

CONCLUSIONS

1 – The perception of risk of hookah usage is significantly different between users and non-users at Indiana University – Southeast, while there is no difference between users and non-users at Bellarmine University.

2 – Between student hookah users of both campuses, BU users have a lower perception of hookah risk compared to hookah users at IUS.

3 – While E-cigarette users show a significant difference in perception of risk of using e-cigarettes compared to non-users, there are no differences when comparing between students on BU and IUS campuses.

4 – Without regard for campus students who have visited a hookah lounge at least once have a lower perception of hookah usage risk when compared to non-users.

loungees in Louisville. Thus, perceptions of e-cigarette risk are likely to not be as varied between both campuses compared to hookah risk.

4 – Without regard for campus students who have visited a hookah lounge at least once have a lower perception of hookah usage risk when compared to non-users.

Figure 2. Summary comparing college students who have ever tried hookah and whether smoking tobacco cigarettes. 5 being "I strongly believe".

Figure 3. Summary comparing college students who have ever tried e-cigarettes and whether the use of smoking cigarettes. 5 being "I strongly believe".

Figure 4. Summary comparing whether hookah lounge visitation correlates to hookah use. 5 being "I strongly believe".

Interestingly, there were no significant differences in perceptions of risk of hookah use between BU and IUS students.

While conclusive data is lacking, considering the relative availability of hookah lounges near IUS, it is likely that the availability of hookah lounges influences BU students to become desensitized to the risks of hookah. IUS students, who are located much farther away from retail outlets, are not as heavily impacted by these same factors.

Figure 1. Local universities in the Louisville Metro area (black and gray) are mapped along with surrounding hookah lounges (red) and vapor stores (green).

Vapor stores for this study were considered to be stores that ONLY sell e-cigarette products. General convenience stores that sell conventional tobacco products and other goods were omitted.

Louisville University Student Usage of Hookah and Attributed Perceptions of Risk

by David M. Kiser and Paul J. Kiser
Bellarmine University, Louisville, KY 40205 USA

Perceptions of Risk

Perceptions of Hookah Risk Based on Lounge Visitation

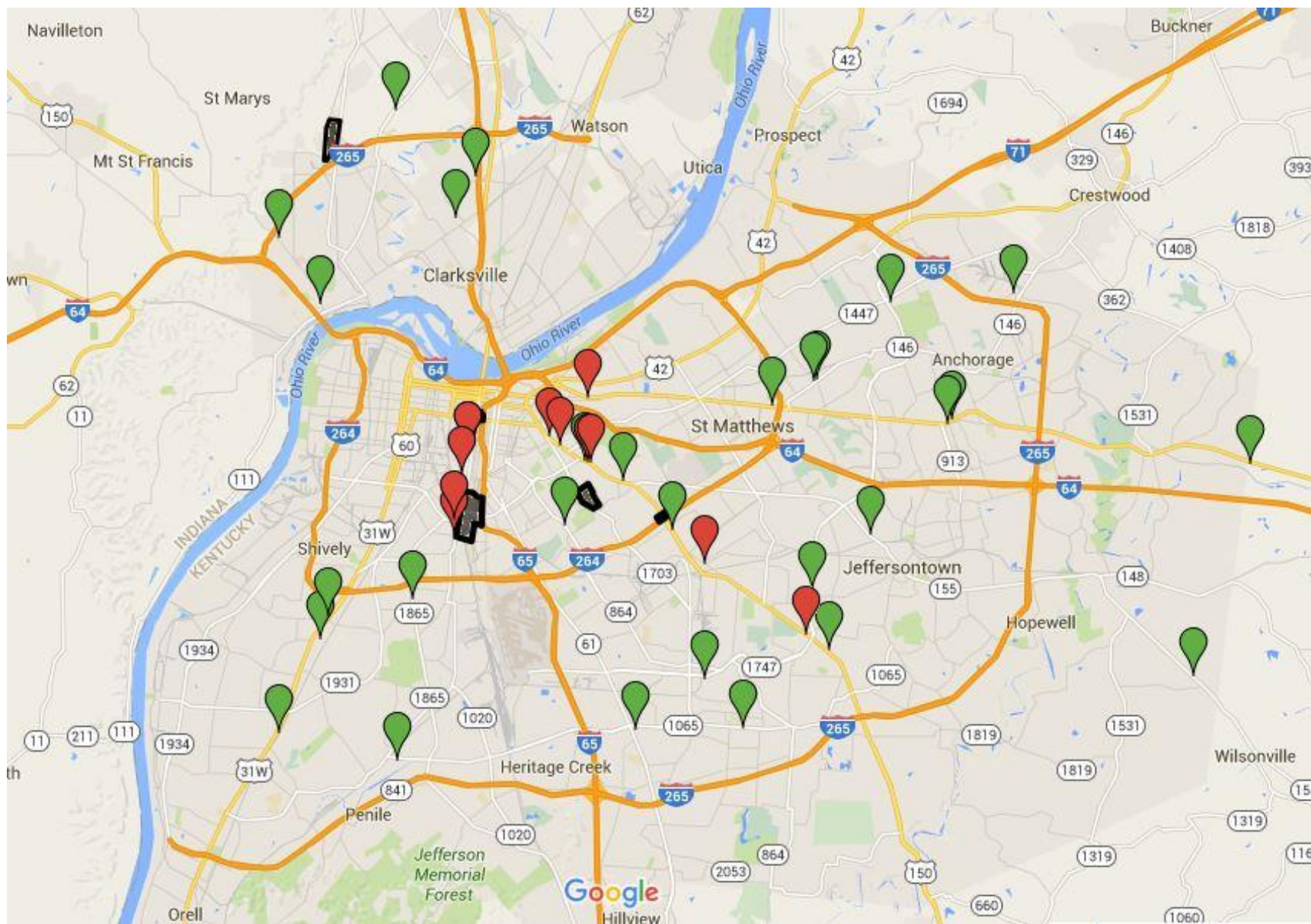
Results of an ANOVA conducted comparing students who had ever visited a hookah lounge and whether they perceived the risk of smoking tobacco cigarettes. It is uncertain if the perception of risk is significantly different between those who believe "I strongly believe" and 5 being "I strongly believe".

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CONCLUSIONS

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Final Thoughts

- Hookah is a health risk as significant as smoking cigarettes
- Secondhand smoke from hookah is hazardous and is prevalent in establishments that allow indoor hookah use
- Health risks from hookah are found in both tobacco and herbal shisha blends
- Youth consumption of hookah (and e-cigs) has increased significantly in the last 5 years
- Perceptions of risk from the use of hookah and e-cigs appear to be negatively influenced by proximity and availability of those products

Final Thoughts

To protect the health of everyone at their workplaces, I strongly recommend that hookah and e-cigarettes be included in the Louisville Metro smokefree ordinance* thereby treating them as a health risk equal to other tobacco products and prohibiting their consumption in all indoor public spaces.

*Lou. Metro Am. Ord. No. 1-2008, approved 1-11-2008



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